

CHAPTER 2 – GOALS, OBJECTIVES, AND SYSTEM PERFORMANCE MEASURES

The Washington State Department of Transportation (WSDOT) initiated an update of the Washington Aviation System Plan (WASP) to study the performance and interaction of the state’s entire aviation system. Together, the airports that comprise the system function as a whole in serving aviation demand, driven by economic and transportation needs. The WASP provides WSDOT with analysis of the system’s needs from examining the existing available facilities to estimating future demand, evaluating future alternative scenarios, and providing recommended policy direction to support the system’s future development.

The first step in the WASP consisted of establishing goals, objectives, and system performance measures. *Goals* are used to define what is important for the system. *Objectives* describe the goals, providing a framework around understanding the goals from the aviation system’s perspective. *System performance measures* identify quantitative means to evaluate how the system is achieving the goals and objectives. Together, the goals, objectives, and system performance measures establish the foundation for subsequent evaluation of the system’s needs.

2.1 Process

The WASP serves as the roadmap for Washington’s aviation system, one of many modes within the State transportation system. As part of establishing goals for the WASP, the Washington Transportation Plan (WTP) 2035 policy goals, which are organized based on transportation system policy goals from RCW 47.04.280, were reviewed in reference to the aviation system. The six transportation policy goals include the following:

- **Economic Vitality:** To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy
- **Preservation:** To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services
- **Safety:** To provide for and improve the safety and security of transportation customers and the transportation system
- **Mobility:** To improve the predictable movement of goods and people throughout Washington state including congestion relief and improved freight movement
- **Environment:** To enhance Washington’s quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment
- **Stewardship:** To continuously improve the quality, effectiveness, and efficiency of the transportation system

Through meetings and workshops with the WASP Advisory Committee, eight goals were identified for the WASP. The WASP goals reflect the core of the above six transportation policy goals, as well as provide for additional goals that are needed to support the aviation system. The WASP goals are as follows:

- Aeronautical and airport safety
- Economic development and vitality
- Education, outreach, and community
- Infrastructure improvement, preservation, and capacity
- Aviation innovation
- Modal mobility, capacity, and accessibility
- Stewardship
- Sustainability

The goals above are listed in the general priority determined through the meetings and workshops, indicating those goals that are most critical to the Washington aviation system's future. The following summarizes each of the Goals and provides more description of the objectives and system performance measures for each goal. As described in a subsequent development, as part of the WASP, WSDOT established a series of airport metrics that support the overall strategic goals of WSDOT. The airport metrics are tied directly to each goal for the WASP and address specific parameters to evaluate how each airport is supporting the aviation activities that exist at the airport, which allows the overall system to function most effectively.

2.2 Aeronautical and Airport Safety

The goal of *Aeronautical and Airport Safety* is intended to ensure airports are improving safety performance and efficiencies. The objectives of this goal include attaining and maintaining WSDOT's airport metrics and FAA design standards, including maintaining safe and clear approaches.

As identified in a series of advisory circulars and orders, FAA publishes design standards that facilitate development of a national system of airports that is safe, accessible, and cost-effective. FAA's design standards represent standards and recommendations for airport design are mandatory for obligated airports, and represent "best practices" for unobligated airports relative to airport design based on extensive research. The FAA design standards reflect an effective national approach for meeting the long-term aviation demand in a manner that is consistent with national policy, with safety being the highest priority. Significant effort should be made for airports to meet applicable standards not only for safety purposes but also, for those airports that are obligated, and because funding may depend on it. Airports that are included in the FAA's *National Plan of Integrated Airport Systems* (NPIAS) are those designated as eligible for federal funding that is focused on ensuring airports are meeting design standards and providing safe and efficient facilities.

WSDOT has placed a priority on ensuring airports have safe approaches, including having clear Federal Aviation Regulation (FAR) Part 77 surfaces, and that there are no obstructions in the threshold siting

surfaces (TSS)¹ for the primary runway ends. These surfaces are analyzed by airports during planning and design and correspond directly to the types of aircraft and approach procedures available at the airports.

Following are the system performance measures for the Aeronautical and Airport Safety goal:

- Airports that meet WSDOT performance objectives, including NPIAS airports that meet current FAA design standards
- Airports with clear Part 77 approaches and threshold siting surfaces (TSS)
- NPIAS airports that meet current FAA/state design standards

2.3 Economic Development and Vitality

The goal of *Economic Development and Vitality* is to ensure airports are advancing the business opportunities leading to economic prosperity in the airport environment and within the surrounding community. The objectives for this goal include supporting and increasing the opportunity of the transportation of goods and passengers utilizing air service, enhancing collaboration between the airport and its community to maintain and support economic growth and development, and increasing tenant revenues by promoting on-airport aerospace manufacturing jobs.

The most recognizable forms of aviation by the majority of consumers are commercial passenger service and air cargo or freight service. Many consumers utilize commercial passenger service to fly either for business or pleasure and are familiar with scheduled passenger airlines, while others may utilize air cargo or freight to ship packages. Definitive links exist between aviation and the vitality of the state's economy, as well as opportunities for future economic development. Support and increased opportunities for commercial passenger and air cargo services is an important objective of the State's aviation system.

Air cargo provides connectivity of communities and businesses by providing quick access to time-critical, high-value products. Most airports can handle air cargo, whether it is a load of vehicle repair parts to a remote area by seaplane or large nationwide carriers that move millions of tons of air cargo annually. Many of Washington's airports accommodate air cargo, however, much of the cargo data is not tracked. Airports can benefit from monitoring and measuring the cargo carried by commercial airlines and small 'express' package carriers, to demonstrate a variety of supported aviation activities, job and wage contributions, and airport support to the community.

By actively developing partnerships with local economic organizations, airports are able to identify and capitalize on future opportunities that will grow the airport in a manner that is consistent with the community's drivers. Within Washington State, an important economic driver is the aerospace industry, which supports thousands of jobs. Many of these jobs are located at or near airports, which provide opportunities for airports to support the regional and statewide economy as well as provide a mechanism to generate revenue for the airports. The collaboration and partnerships between airports and economic development are an important objective in achieving economic vitality for the state.

Following are the system performance measures for the Economic Development and Vitality goal:

- Airports with documented air cargo activity (by type) and strategy/market and airports with growing (greater than 1 percent per year) commercial airline service

¹ The threshold siting surfaces ensure compatibility between nearby objects and the runway's threshold, which is defined as the first part of pavement available and suitable for landing.

- Airports with active development partnerships with chambers of commerce, tourism bureaus, service organizations, industries, governments, and recreational user groups
- Airports with business parks or landside real estate development (existing and available) and those with on-site aerospace manufacturing leases

2.4 Education, Outreach, and Community Engagement

The goal of *Education, Outreach, and Community Engagement* is to promote aviation and its importance, impact, and activities on a broad level extending beyond just the airports. The objectives include promoting aviation education to enhance safety and community support, increasing community knowledge of the aviation systems to communicate airport benefits and contributions to local communities and economies, and promoting aviation activities matched to local and aviation community needs.

By promoting aviation through education, the airport helps further aviation to create a sustainable future of aviators and promotes a more knowledgeable community that understands aviation and airports. Education programs may be in need of land to build facilities, existing facilities to host events, aircraft and automobile parking, or access to the airfield depending on the type of program. This may also include supporting programs such as Young Eagles that introduces children to aviation through flights from local pilots or airport staff participating in a career development day at a local school. Additionally, by providing opportunities for the aviation and non-aviation community to provide feedback to the airport helps in the overall success of the airport. As airports seek to maintain and improve facilities, community support is needed and the knowledge and understanding generated through education, outreach, and engagement helps to build this support for airport development.

Following are the system performance measures for the Education, Outreach, and Community Engagement goal:

- Airports that host aviation education/schools and communities with aviation educational programs
- Airports that host community events that include aviation expert guest speakers related to their airport activities and role
- Airports that host community input programs that solicit feedback on airport meeting community aviation needs

2.5 Infrastructure Improvement, Preservation, and Capacity

The goal of *Infrastructure Improvement, Preservation, and Capacity* is focused on ensuring the existing system is maintained and improved to handle the current and forecasted capacity. The objectives include providing access for aircraft during all weather conditions, maintaining the facilities to established WASP classification levels, and planning to meet emerging requirements in technology and infrastructure, such as the Next Generation Air Transportation System (NextGen).

When the weather is clear and pilots can see where the aircraft is going, many pilots do not need to rely heavily on their aircraft's instrumentation for navigation, especially in general aviation operations. As weather worsens and certain conditions exist, pilots must utilize their instrumentation more, particularly when landing at airports via instrument approach procedures (IAP). IAPs provide continued and better

access to airports by helping aircraft land at specific runway ends, especially during inclement weather. Different types of IAPs with different requirements are available based on infrastructure and surroundings of the airport. While it may have greater requirements for the airport, the lower the visibility minimums are for an IAP, the closer the pilot may fly to the runway end utilizing only the aircraft's instrumentation panel. By providing more precision and lower visibility minimums, IAPS provide better access for aircraft to airports during all weather conditions.

A critical part of an airport enabling transportation is its physical infrastructure and capacity. As discussed subsequently, the WASP identified airport metrics to evaluate how airports are supporting the system goals as well as aviation activities that are occurring at the airports. The airport metrics relate to how airports should preserve and improve existing infrastructure to effectively support the aviation activities that the system accommodates and provide a means for measuring progress toward meeting established objectives/standards for airport infrastructure and safety.

Technology continues to evolve and the aviation system continues to change to respond to new technologies, with different issues emerging as a result. A prominent emerging issue based in technology is the modernization of the National Airspace System (NAS) by NextGen.

NextGen initiatives will affect flight plans and can have noise impacts, as well as impacts to navigation aids, airspace, airfield capacity, and obstruction management. While some initiatives are already being implemented, like performance based navigation (PBN) and automated dependent surveillance-broadcast (ADS-B), more programs are in their initial stages of deployment, such as weather, voice systems, information management, and data communications. Each of these programs is geared toward improving one facet of the safety and efficiency of the aviation transportation system. Airports should ensure they are preparing for future requirements and impacts for these technologies.

Following are the system performance measures for the Infrastructure Improvement, Preservation, and Capacity goal:

- Airports with instrument approaches (by type of minimums, including CAT I/II/III)
- Airports making progress toward established objectives/standards for airport infrastructure and safety
- Airports that are "NextGen Ready" (parallel taxiway, other facilities)

2.6 Aviation Innovation

The goal of *Aviation Innovation* is aimed at supporting new and emerging technologies and processes related to aviation with objectives in supporting innovation in the aviation system and aeronautics. Recent innovations affecting many facets of airports include NextGen, unmanned aircraft systems (UAS), alternative fuels, aircraft innovation, and the use of new technologies at airports and in flight. The use of UAS, or drones, needs to be actively addressed to optimize integration into the current aviation system while ensuring any negative impacts to the general public are minimized. Aircraft innovation and UAS may evolve to allow for general use, requiring future intermodal connections to roadways and unique airport improvements.

By supporting and partnering in the research and advancement of the technologies through industry providers, aviation related associations, and academia, sponsors can stay informed and be involved in evolving programs. This allows developers and researchers a chance to better understand how it may impact airport operations and provide airports a chance to provide input at the earlier stages. This will

also allow for a better understanding of the future infrastructure needs of airports based on these innovations. Programs may be as simple as participating in a survey or providing meeting space or as complex as testing out new material for a construction project.

The following are the system performance measures for the Aviation Innovation goal:

- Airports that partner with industry, associations, and academia
- Projects that develop new aviation mobility concepts

2.7 Modal Mobility, Capacity, and Accessibility

The goal of *Modal Mobility, Capacity, and Accessibility* is intended to ensure the airport is easily accessible to the general public. Connectivity to airports has been identified as a reoccurring concern across the nation as airports are not always involved in the local, regional, or statewide transportation planning process. Objectives include providing adequate ground access to and from the airport, supporting a performance-based approach to solving connection needs, and supporting and improving multimodal connections.

Adequate access for an airport means ensuring the road and parking capacity is optimized on the surrounding roadways. Airports should ensure they're being represented within the local transportation and comprehensive plans to reduce delays and coordinate with public transit. If the airport is not considered, it is likely that ground access will diminish or not improve with future growth. As roadways become more congested, passengers are encouraged to take alternative, or intermodal, modes of transportation. By reviewing connections and opportunities for other modes of transportation, such as rail, public transit, or bicycle, an airport will be better connected to the community to support continued growth.

Adequate access also involves signage that alerts users to the various components of the airport, including its location. By providing signage that directs passengers to their respective terminal, parking area, or other amenities as well as how to exit the airport to their destination, the overall flow and capacity of the airport improves. Airports can also provide rental or courtesy cars, which allow passengers to reach their final destination located off the airport.

Following are the system performance measures for the Modal Mobility, Capacity, and Accessibility goal:

- Airports that are adequately accessible in terms of signage and access road quality and that provide rental or loaner cars
- Airports involved in regional transportation and comprehensive plans
- Airports with intermodal options (rail, public transit, seaplane)

2.8 Stewardship

The goal of *Stewardship* is intended to ensure an airport is looking after its long-term welfare enhancing planning and management of resources. Resources at an airport include the physical infrastructure (such as the pavement, terminals, and hangars), personnel (such as staff, tenants, and users), and financial funds (such as grants, bonds, and general funds). Objectives include protecting investments by implementing

and maintaining planning documents, conducting preventive and corrective maintenance of the infrastructure, and advocating for land-use protection and height hazard zoning.

Airport planning documents may include an airport master plan or an airport layout plan (ALP), which are the basis of airport planning at the local level. These planning documents are a comprehensive analysis of an airport that ultimately illustrate the short- and long-term development plans to meet the future aviation demand. By involving the community, industry, and academia in the planning process, awareness and partnerships are established or renewed to promote and grow the aviation industry and provide additional insight into current and future considerations. Planning documents should be reviewed every 5 to 10 years for applicability to the current goals and conditions of the airport.

Preventive maintenance programs demonstrate an interest in and expectation to maintain an airfield to a standard that provides a safe operating environment for pilots, the main users of airports. WSDOT conducts a system-wide study of airfield pavements to assess the relative condition of many of the state's airports approximately every five years, referred to as the *Airport Pavement Management System* (APMS). The APMS supplements analyses conducted by many airports to evaluate conditions and determine pavement-related project needs and timing.

The encroachment of incompatible land uses, tall structures, or bright lights can threaten the continued operation of an airport. Incompatible land uses can lead to an increase in noise complaints or restrictions on operating times or aircraft. Tall structures that penetrate the surrounding airspace may lead to raising visibility minimums to ensure adequate pilot safety, which then limits the accessibility of the airport. Municipalities are encouraged to address protection of airports and their future improvements in the future land use, transportation, intergovernmental coordination, and capital improvement program elements of their local government's comprehensive plan. This may include adopting land use compatibility and height hazard zoning into the municipal code. WSDOT provides an *Airports and Compatible Land Use Guidebook* that is used as a reference in the state of Washington to working cooperatively and proactively with local jurisdictions.

Following are the system performance measures for the Stewardship goal:

- Airports with approved master plan/airport layout plan in last 5 years
- Airports with established preventive maintenance programs
- Airports within adopted height and land use zoning for impacted jurisdictions

2.9 Sustainability

Sustainability can mean different things to different people and organizations, but the aviation industry has mainly adopted the “EONS” approach. This approach consists of economic vitality (E), operational efficiency (O), natural resources (N), and social responsibility (S). The goal of sustainability for the WASP includes reducing environmental impacts, providing an aviation system that is sustainable, and implementing financial sustainability measures. Airports that have adopted sustainability practices typically see reduced operating costs, better relationships with their community, and better customer service and satisfaction.

Airports can adjust their environmental impact in simple and complex ways, from establishing recycling programs to utilizing alternative fuels to managing wildlife on the airfield. The specific programs and practices need to be developed and tailored by the individual airports as facilities, services, and policies

vary widely. Airports are encouraged to focus on waste, air and water quality, alternative energy sources, and wildlife management.

Financial sustainability is a key topic for many airports as they strive to become self-sufficient and continue to provide their local share of the funds for development projects. Airports should be innovative and strategic in the methods they use to obtain and grow their revenue sources. Traditional methods of generating revenue include land leases for offices and tenants, aircraft storage, fuel sales, landing fees, and concessions. By reviewing the existing fee schedule, policies, and procedures, an airport may be able to determine if it is obtaining the best return on its investments, if it is charging the market rates, and potentially discover methods of obtaining future revenue sources. Conducting a business plan can help ensure an airport is choosing development projects that give them the best returns on their investments, charging the correct rates, operating and marketing the airport properly and efficiently, and review additional sources of revenue.

By connecting sustainability to the other goals at the airport, it is outlining a successful program that is more easily achieved. These programs and practices can be implemented into any planning, design, or construction project as well as in an overall sustainability plan that outlines the overall goals and objectives of the airport. By measuring the success rate and reviewing the goals periodically, the airport can better formulate an effective plan.

Following are the system performance measures for the Sustainability goal:

- Airports with storm water pollution prevention plans (SWPPP), recycling programs, alternative fuel vehicles, and noise contours in last 10 years
- Airports with sustainability plans that have energy conservation goals
- Airports that have implemented financial sustainability measures

Table 2-1 summarizes the WASP goals, objectives, and system performance measures.

Table 2-1. Summary of Goals, Objectives, and System Performance Measures

GOAL	OBJECTIVES	SYSTEM PERFORMANCE MEASURES
Aeronautical and Airport Safety	<ul style="list-style-type: none"> ▪ Attain/maintain WSDOT performance objectives and standards (FAA standards, as appropriate) ▪ Maintain safe/clear approaches ▪ Attain/maintain applicable FAA/State design standards/metrics 	<ul style="list-style-type: none"> ▪ Airports that meet WSDOT airport metrics, including NPIAS airports that meet current FAA design standards ▪ Airports with clear Part 77 approaches and threshold siting surfaces ▪ NPIAS airports that meet current FAA/state design standards
Economic Development and Vitality	<ul style="list-style-type: none"> ▪ Support transport of goods and passengers by air, including increasing service opportunities ▪ Collaborate with airport sponsors and other agencies to maintain and support high, stable levels of community economic growth and development ▪ Increase airport tenant revenue growth, including promoting on-airport aerospace manufacturing jobs 	<ul style="list-style-type: none"> ▪ Airports with documented air cargo activity (by type) and strategy/market and airports with growing (>1% per year) commercial airline service ▪ Airports with active development partnerships with chambers of commerce, tourism bureaus, service organizations, industries, governments, and recreational user groups ▪ Airports with business parks or landside real estate development (existing and available) and those with on-site aerospace manufacturing lessees
Education, Outreach, and Community Engagement	<ul style="list-style-type: none"> ▪ Promote aviation education to enhance safety and community support ▪ Increase community knowledge of the aviation system to communicate airport benefit and contribution to local communities/economies ▪ Promote aviation activities matched to community need 	<ul style="list-style-type: none"> ▪ Airports that host aviation education/schools and communities with aviation educational programs ▪ Airports that host community events that include aviation expert guest speakers related to their airport activities and role ▪ Airports that host community input programs that solicit feedback on airport meeting community aviation needs

Table 2-1. Summary of Goals, Objectives, and System Performance Measures (continued)

GOAL	OBJECTIVES	SYSTEM PERFORMANCE MEASURES
Infrastructure Improvement, Preservation, and Capacity	<ul style="list-style-type: none"> Provide aeronautical access to airports during all weather conditions Maintain airport facilities at established airport classification levels Plan for new capabilities to meet emerging requirements, including NextGen technologies 	<ul style="list-style-type: none"> Airports with instrument approaches (by type of minimums, including CAT I/II/III) Airports making progress toward established objectives/standards for airport infrastructure and safety Airports that are “NextGen Ready” (parallel taxiway, other facilities)
Aviation Innovation	<ul style="list-style-type: none"> Support innovation in the aviation system Support innovation in aeronautics 	<ul style="list-style-type: none"> Airports that partner with industry, associations, and academia Projects that develop new aviation mobility concepts
Modal Mobility, Capacity, and Accessibility	<ul style="list-style-type: none"> Provide adequate ground access to/from airports Support road capacity access initiatives Support and improve multimodal connections, including multiple transportation options for users 	<ul style="list-style-type: none"> Airports that are adequately accessible in terms of signage and access road quality and that provide rental or loaner cars Airports involved in regional transportation and comprehensive plans Airports with intermodal options (rail, public transit, seaplane)
Stewardship	<ul style="list-style-type: none"> Protect the investment in the aviation system, including implementing and maintaining current airport planning documentation Conduct requisite airport infrastructure preventive and corrective maintenance Advocate local governments for land-use protection and height zoning 	<ul style="list-style-type: none"> Airports with approved master plan/airport layout plan in last 5 years Airports with established preventive maintenance programs Airports within adopted height and land use zoning for impacted jurisdictions

Table 2-1. Summary of Goals, Objectives, and System Performance Measures (continued)

GOAL	OBJECTIVES	SYSTEM PERFORMANCE MEASURES
Sustainability	<ul style="list-style-type: none"> ▪ Reduce environmental impacts ▪ Provide an aviation system that is sustainable ▪ Implement airport financial sustainability measures 	<ul style="list-style-type: none"> ▪ Airports with storm water pollution prevention plans, recycling programs, alternative fuel vehicles, and noise contours in last 10 years ▪ Airports with sustainability plans that have energy conservation goals ▪ Airports that have implemented financial sustainability measures

Source: WSDOT Aviation, 2016